

Understanding the Two-Stage Process

Maximizing the Nutritional Value of Whole Grains

Just because you've switched from white flour to whole grains does not mean that you are getting all the nutritional value. In fact you may also experience new problems with digestion and assimilation. That is because whole grains contain phytic acid in the bran of the grain. Phytic acid combines with key minerals, especially calcium, magnesium, copper, iron, and zinc and prevents their absorption in the intestinal tract.

Soaking, fermenting, or sprouting the grain before cooking or baking will neutralize a large portion of the phytic acid, releasing these nutrients for absorption. This process allows enzymes, lactobacilli, and other helpful organisms to not only neutralize the phytic acid, but also to break down complex starches, irritating tannins, and difficult-to-digest proteins including gluten. For many, this may lessen their sensitivity or allergic reactions to particular grains. Everyone will benefit, nevertheless, from the release of nutrients and greater ease of digestion.

The first stage of preparation in making baked recipes is to soak the whole grain flour in an acid medium. In quick breads this is usually a cultured milk such as kefir, plain yogurt, sour raw milk, or buttermilk. A small amount of apple cider vinegar, whey,¹ or lemon juice is added when the primary liquid in the recipe is either water, sweet raw milk, or almond or coconut milk.

As little as 7 hours soaking will neutralize a large portion of the phytic acid in grains. Twelve to 24 hours is even better with 24 hours yielding the best results. Brown rice, buckwheat, and millet are more easily digested because they contain lower amounts of phytates than other grains, so 7 hours soaking is sufficient. Other grains, particularly oats, highest in phytates of the whole grains, are best soaked up to 24 hours.

There are two other advantages of the two-stage process. Several hours of soaking serves to soften the grain, resulting in baked goods lighter in texture, closer to the texture of white flour. This is especially helpful when making blender batters, where the initial blending may not smooth out the grain as much as desired. Secondly, this is a great step in convenience, dividing the task into two shorter time periods. It cuts the time needed to prepare the recipe right before cooking and baking when you feel rushed to get food on the table. Doing food preparation tasks in advance is a great convenience facilitator. The two-stage process fits right in.

I believe that the sensitivity to whole grains that people frequently have may be minimized by utilizing the two-stage process (in recipes in addition to enhancing nutritional value). As Sally Fallon and Mary Enig, PhD point out, "...virtually all preindustrialized peoples soaked or fermented their grains before making them into porridge, breads, cakes and casseroles." (*Nourishing Traditions* p. 452).

Many are overwhelmed by the thought of doing the two-stage process. This is because it is a *paradigm shift*, something completely foreign to our normal way of doing things. For decades it has never been part of cookbooks with whole grain recipes. Thus a variety of questions arise, such as, "Do I soak the grain and then grind it? Do I grind the flour and then soak it? How will I use the soaked flour or grain in the recipe?, etc." Instead of worrying about when you do things, just follow the recipe. The answers are part of the first step. As you become familiar with the basic two-stage preparation for either a quick bread or yeast bread, you will easily learn how to adapt it to any recipe that does not follow two-stage preparation. The only time that separate preparation is needed is when the method used is sprouting the grain. There are some wonderful advantages in using sprouted grain. I have introduced it in the *Yeast Breads* section. Sprouted grain can be used in both quick and yeast breads.

¹Yogurt usually separates somewhat once opened or even before opening, leaving some liquid on top. This is whey. To make a quantity of your own whey, make *Yogurt Cheese* (see *Lunches & Snacks*); whey is the byproduct of making yogurt cheese with plain yogurt. Whey may be frozen; freeze in 2 tbsp. portions.

Evaluating the Importance of the Two-Stage Process

While the whole truth is probably not yet known (recall *Proverbs 25:2*), phytates also have promising benefits. Research shows that they may be involved in curbing free radicals in the body that contribute to heart disease and cancers, as well as preventing excessive mineral build up in the body, especially of iron, which also contributes to free radical formation. It is thought that it may be the phytates in the bran layers of whole grains, in legumes, and in nuts and seeds that are providing these protections. However, I question the fear of excessive mineral buildup when real whole foods are consumed. The value of phytates does not warrant ignoring the value of the two-stage process. First of all, neutralizing phytic acid to release nutrients bound up in the form of phytates is not 100% accomplished except under ideal conditions of temperature and pH. These conditions cannot be easily achieved in home baking. Perhaps they are best achieved in making sourdough breads, a time-honored practice for millenia. Second, take a realistic look at your habits. Home baking notwithstanding, commercial whole grain products not processed by a two-stage process will find their way to our tables (as whole grain pastas, commercially purchased breads, e.g.). Likewise, only the most dedicated will do the two-stage process with every recipe. Stop worrying that you will ruin the benefits of phytates by using the two-stage process. Many more people lack essential minerals and have difficulty with the digestion of gluten in grains. The two-stage process, therefore, plays a valuable role in baking with whole grains.

Kaayla T. Daniel, PhD, CNN, author of *The Whole Soy Story*, points to the Hebrews as an example of consuming both leavened and unleavened bread. The former, which was produced through the fermentation process from wild yeasts, was practiced most of the time. The latter, unleavened bread, was part of the the Hebrew preparation for Passover in early spring, "a natural time for fasting, a practice that encourages detoxification." Daniel suggests that these yearly short periods "might have been a very effective way to rid the body of any heavy metals through the action of phytic acid." On the other hand, she reminds us that "decades of research on the phytates of real foods have shown that phytates are antinutrients--more likely to contribute to disease than prevent it."¹

I suggest that occasional consumption of whole grains that are not processed by one of the three two-stage methods (soaking, fermenting, sprouting) is not likely detrimental to health² and may contribute a plus, while those that are properly processed as the main dietary choice will be greatly beneficial to health.

¹*The Whole Soy Story*, by Kaayla T. Daniel, PhD, CNN, Chapter 17, "Phytates ties that bind," pp. 221, 224, quotes by permission.

²However, to many gluten-sensitive and grain-allergic persons, the two-stage process may be beneficial on a basically consistent basis. See also, "Against the Grain-The Case for Rejecting or Respecting the Staff of Life" by Katherine Czapp, *Wise Traditions*, Summer 2006: <http://www.westonaprice.org/moderndiseases/gluten-intolerance.html>